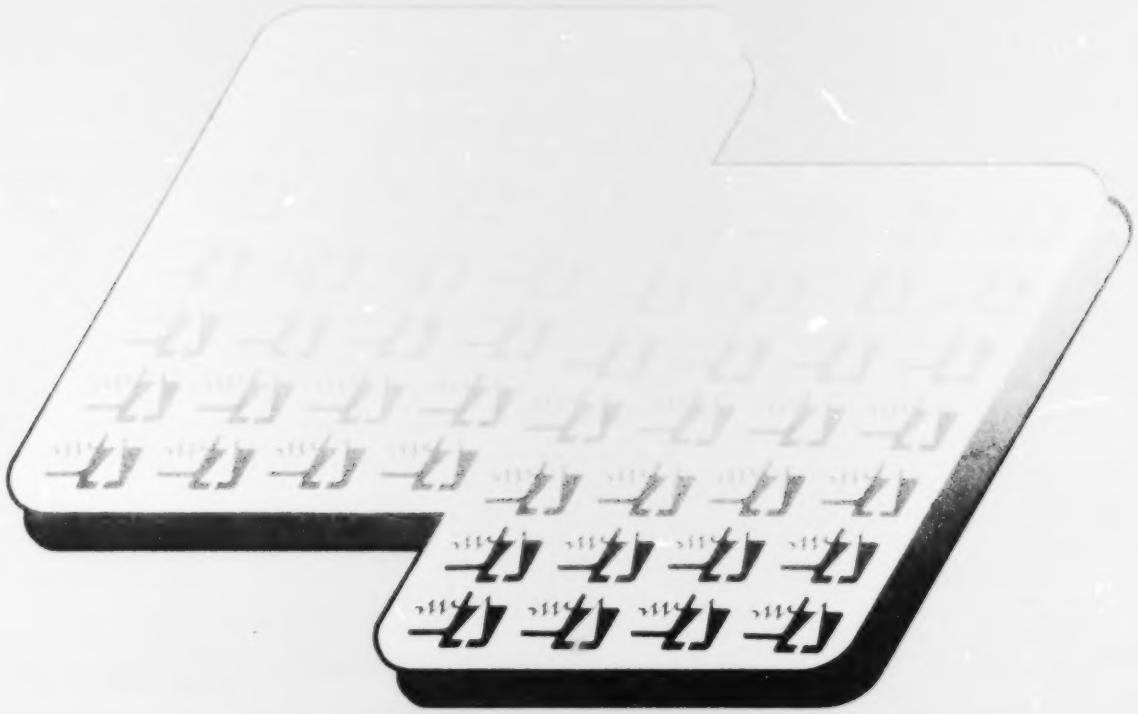
ANNUAL REPORT

Department of Energy and Forestry



Department of
Energy and Forestry

Fiscal Year: April 1, 1988 - March 31, 1989

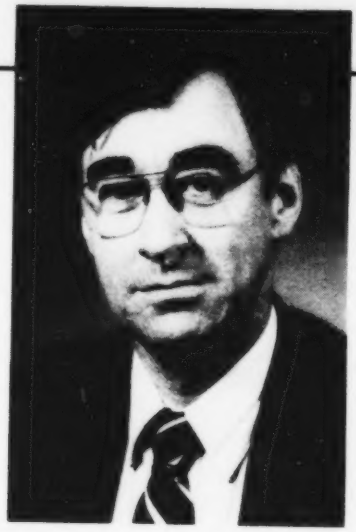
Annual Report of the Prince Edward Island Department of Energy and Forestry

for the fiscal year ended

March 31, 1989

Honourable Barry Hicken, Minister

90-05262/



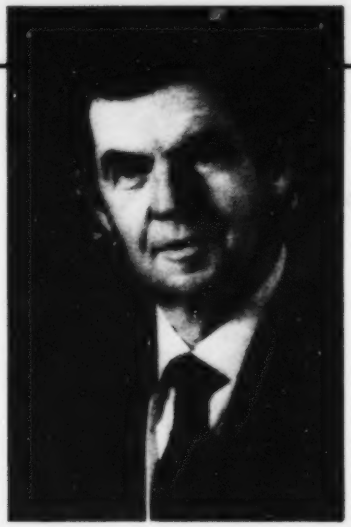
To His Honour
The Lieutenant-Governor
of the Province of Prince Edward Island

May it please your Honour:

Herewith I respectfully submit the Annual Report of the Prince Edward Island Department of Energy and Forestry for the fiscal year ended March 31, 1989.

Barry Hicken

Hon. Barry Hicken
Minister
P.E.I. Department of Energy and Forestry



The Honourable Barry Hicken
Minister
Prince Edward Island Department of Energy and Forestry

Sir:

I have the honour to submit the Annual Report of the Department of Energy and Forestry for the fiscal year ended March 31, 1989.

Respectfully yours,

Douglas Cameron
Deputy Minister

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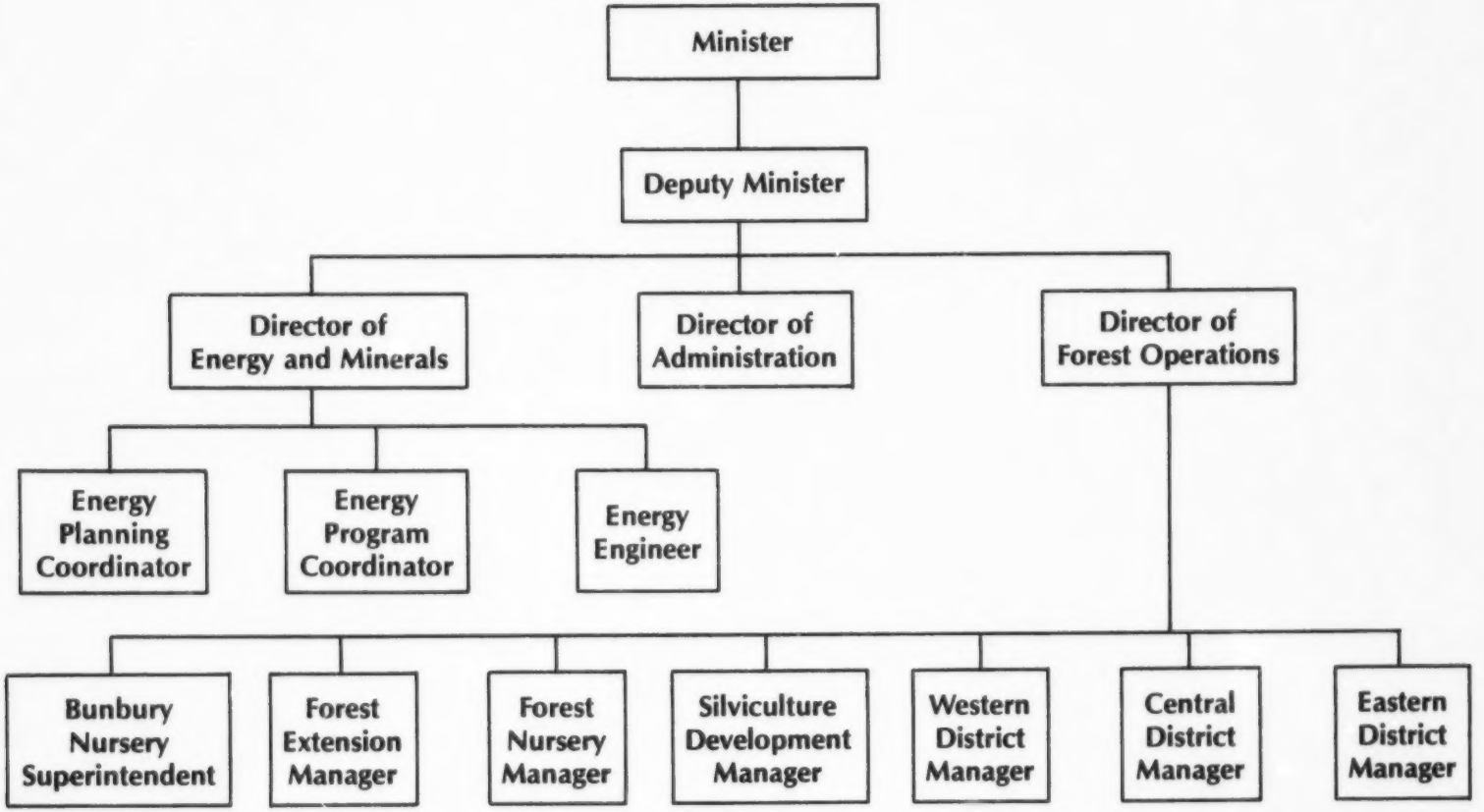
STRUCTURE OF THE DEPARTMENT



ENERGY AND MINERALS BRANCH

Role and Priorities of Branch

The Energy and Minerals Branch of the Department of Energy and Forestry is responsible for developing energy policy; dissemination of energy efficiency and energy alternatives information to the public; maintaining interprovincial and international liaisons with respect to energy; and regulating and encouraging the exploration for minerals and oil and gas within the Province.

In the time period April 1, 1988 to March 31, 1989, the Energy and Minerals Branch was particularly involved in issues critical to the Province: development and promotion of renewable sources of energy for local use; ensuring secure supplies of energy - particularly electricity; assisting Islanders to purchase energy at the lowest possible price, and providing information programs on energy efficiency and alternate energy.

Prince Edward Island's Energy Needs

The annual per capita energy consumption of Prince Edward Islanders is 48,811 kWh, about 58 percent of the Canadian average. Much of this difference occurs in the industrial sector. P.E.I. has much less industrial activity per capita than the country as a whole, and the industries it does have are much less energy intensive. The energy used for industrial purposes on P.E.I. is only 2052 kWh per person - about 5 percent of the Canadian average (see figure 1).

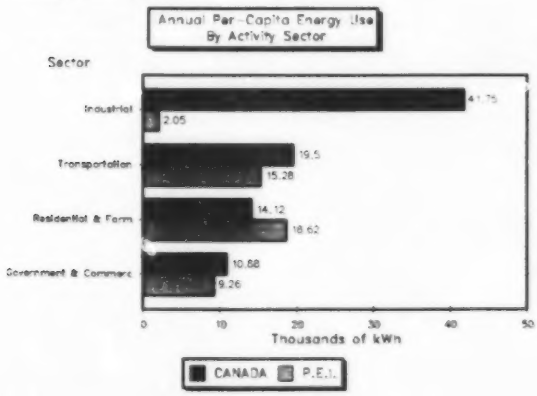


Figure 1

As figure 2 indicates, oil (and oil based products such as gasoline, diesel fuel, kerosene and propane) accounts for 3/4 of the energy consumed on P.E.I.. The Island has no producing oil or gas wells and all the petroleum consumed here must be brought in from other provinces or other countries, as is almost all of the electricity used. The only locally available fuels are biomass fuels - cordwood, wood chips, wood waste, straw and garbage.

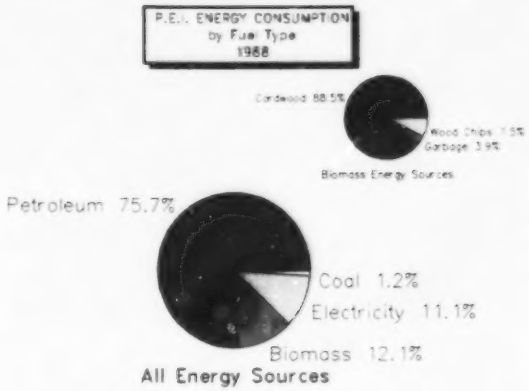


Figure 2

The Negative Effects of Imported Energy

The need to import a large percentage of the energy used has a negative effect on the P.E.I. economy. To keep P.E.I.'s homes and offices warm and lighted requires a continuous outward flow of dollars away from the Island economy. P.E.I. currently imports over 100 million dollars worth of energy every year.

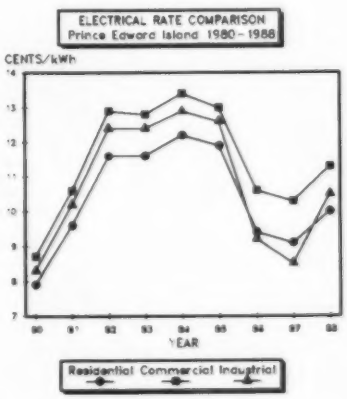


Figure 3

Another negative impact is the pollution created when fossil fuels are burned. Almost all coal and oil contains sulphur, and this sulphur combines with oxygen during combustion to form oxides of sulphur (SO and SO2). These oxides combine with water to create sulphurous and sulp ·uric acids. The resultant product - acid rain - harms forests and water resources.

Also, the concern about global warming as a result of greenhouse gases stems from the fact that atmospheric carbon dioxide (CO_2) levels are rising. The present rapid rise of CO_2 levels in the atmosphere is attributed largely to the burning of fossil fuels. In one recent year (1980) the combustion of fossil fuels globally put an estimated 5.57 billion tonnes of CO_2 into the atmosphere. Although P.E.I. contributes less than one-sixth of 1% of these emissions, it strives to reduce and replace the use of fossil fuels as a source of energy.

Wood Biomass Energy

In recent years, the P.E.I. Department of Energy and Forestry, with the assistance of the P.E.I. Energy Corporation, has been promoting the use of forest products, specifically wood-biomass, as a viable and economical source of renewable energy. The use of wood biomass as a source of energy not only contributes to P.E.I.'s energy security but also to the local economy because fuel dollars are now staying on P.E.I.. The forestry benefits are: expanded market opportunities for wood-lot owners; increased employment in the Island's forest industry; and the opportunity to improve the quality of our forests by replacing poor quality trees with faster growing, genetically superior seedlings.

Furthermore, wood contains much less sulphur than coal or oil: one-tenth the sulphur content of low sulphur oil and 1/200th that of high sulphur coal or oil. Moreover, because wood ash is strongly alkaline, it combines chemically with some of the SO, trapping it and preventing it from being emitted into the air.

When left in their natural state, trees die and decompose in the forest, and their constituent carbon atoms are released into the atmosphere. Burning wood biomass for energy merely accelerates this process, while at the same time, prevents the release of additional carbon dioxide emissions as a result of fossil fuel combustion. Additionally, the current reforestation practices which occur after the harvest of biomass also serve to alleviate global warming.

"AN ACT TO AMEND THE PETROLEUM PRODUCTS ACT"

In the spring of 1986, An Act to Amend the Petroleum Products Act was introduced into the Legislature for the purpose of providing to the Public Utilities Commission the necessary authority to control the pricing of petroleum products. The introduction of the Bill was in response to concerns raised by many Islanders over the high prices they were required to pay for their petroleum products.

After public hearings held by the Select Committee on Legislative Proposals, the Act to Amend the Petroleum Products Act was passed in the Legislature and subsequently proclaimed by the Lieutenant-Governor. Under the revised Petroleum Products Act, the Public Utilities Commission was granted the power to "order a public hearing in respect of prices charged by a wholesaler or retailer for any petroleum products", which it did during 1987. The Minister of the Department of Energy and Forestry intervened in this hearing on behalf of the residents of Prince Edward Island for the purpose of presenting for consideration evidence which would enable the Commissioners to establish a mechanism for determining fair and reasonable petroleum products prices for the present and for the future.

As a result of this hearing, the Public Utilities Commission has determined that the wholesale dealer tank truck prices for gasoline on, 15 April 1987, were just and reasonable and that the wholesale prices for diesel fuel were unjust and unreasonable. The effect of this finding is that the Commission has ordered that as of April 15, 1988, the wholesale dealer tank truck price of diesel fuel sold or offered for sale in Prince Edward Island shall be equal to the wholesale dealer tank truck price of regular leaded gasoline, with adjustments for tax differences only.

THE PETROLEUM PRODUCTS ACT

Petroleum products regulation on Prince Edward Island dates back to 1947. The government of the day was concerned about the over-abundance of grocery stores and businesses which had roadside gasoline pumps, but offered no service facilities. A test was introduced whereby a person or company wishing to obtain a license to retail gasoline would have to convince an independent body (i.e. the Public Utilities Commission) that public convenience and necessity warranted the granting of such a license. The legislation also provided a forum at which the general public was able to voice its support or opposition to the application. The result was that it became more difficult for an individual or company to obtain a retail gas license, and through time the number of no-service facilities declined.

The Petroleum Products Act and its regulations have undergone very few changes since 1947. However, as a result of public concerns regarding the authority of the Public Utilities Commission over the regulation of petroleum products, the Department of Energy and Forestry has drafted a new Petroleum Products Act for presentation in the Spring session of the Legislative Assembly of 1989. The newer version clearly delineates the rules and procedures to be followed by heating fuel and/or motor fuel wholesalers, wholesaler/retailers, retailers and the Public Utilities Commission in respect to licenses, prices, hearings, investigations and Public Utility Commission orders.

ELECTRICITY RATE REDUCTION PROGRAMS

The Department continued to work toward keeping electric rates low. Initiatives which were in effect during the 1988/89 year included the "Public Utilities Income Tax Transfer Act Rebate Program" and the "Manufacturing and Processing Industries Electricity Assistance Program".

The Public Utilities Income Tax Transfer Act (PUITTA) Rebate Program

Under this rebate program, all electricity customers on P.E.I. received a rebate in the form of a reduction on their electricity bills.

The Manufacturing and Processing Industries Electricity Assistance Program (MPIEAP)

This program offered qualifying industrial customers a 20 per cent rebate on their monthly electrical bills to help them compete with off-Island firms. Approximately 86 firms received assistance during the year.

Electric Demand Side Project

The Department of Energy and Forestry entered into an "Enerdemo Canada Program Contribution Agreement" with the Minister of Energy, Mines and Resources in November 1987 for implementation of the "P.E.I. Electrical Demand Side Project" to be completed by March 31, 1989. The purpose of the project was to implement and monitor demand-side, energy-use efficiency pilot projects in cooperation with Maritime Electric Company, Limited and the Town of Summerside.

The project resulted in the following:

- retrofit of street lights in Summerside with high pressure sodium units;
- design and costing of the interconnection for parallel generation; and
- design and pilot implementation of a "Retrofit Energy Analysis Program" (REAP) for efficient lighting audits.

The latter sub-project resulted in pilot audits at ten sites, two of which were implemented.

THE PRINCE EDWARD ISLAND ELECTRICITY AGREEMENT

On August 25, 1988, the premiers of Prince Edward Island, New Brunswick and Quebec entered into an agreement which enables Prince Edward Island to purchase electricity from New Brunswick with the cooperation of Quebec. The agreement provides the province with access to up to 50 Megawatts of capacity and 620 gigawatt-hours of energy per year from November 1,1988 to October 31, 1994. The agreement provides P.E.I. with access to capacity and energy at rates competitive with alternative sources. Maritime Electric Company, Limited committed to 5 MW of capacity in 1988/89 and 15 MW of capacity in 1989/90 in the current year.

THE PRINCE EDWARD ISLAND - NEW BRUNSWICK INTERCONNECTION UPGRADE

The Province, in cooperation with Maritime Electric Company, Limited, entered into negotiations with the New Brunswick Electric Power Commission with respect to upgrading the electrical interconnection between the provinces. The main objective of the upgrade is to construct a second transmission line to the New Brunswick side of the interconnection to increase the Island's security of supply and to allow both submarine cables to be used during peak periods. The Province expects to reach an agreement on the upgrade later in 1989.

Premiers Robert Bourassa, Joseph Ghiz and Frank McKenna sign the Prince Edward Island Electricity Agreement.

ELECTRIC POWER AND TELEPHONE ACT

In light of developments in electricity supply both on and off Prince Edward Island, the Province made amendments to the Electric Power and Telephone Act in 1988 to enable more effective control and management of the Province's electrical supply. The amendments make provision for regulations controlling the purchase of power by utilities from third parties. The amendments are designed to provide a positive climate for independent power producers who wish to generate power on Prince Edward Island.

Along with the amendments, the Province, in cooperation with Maritime Electric Company, Limited, has prepared draft regulations for the purchase of electric power by utilities.

REGULATORY MATTERS

After considerable involvement in the National Energy Board Hearing, the Maritime Electric Rate Hearing and the Maritime Electric Advanced Plan Hearing in 1987/88, the Province did not consider it necessary to file any interventions in 1988/89. Preliminary work was, however, carried out for the future Rate Hearing and Advanced Planning Hearing expected in 1989/90.

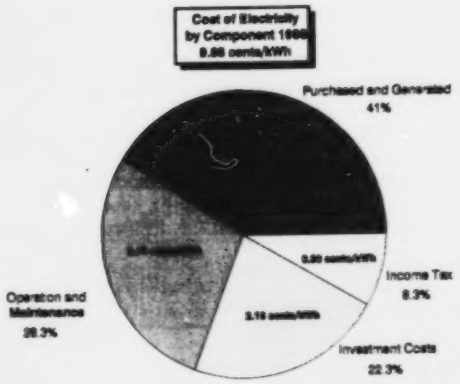


Figure 4

THE ALTERNATE ENERGY DEVELOPMENT AGREEMENT (1984-89)

The Canada-Prince Edward Island Energy Sub-Agreement (AEDA) under the Canada-P.E.I. Economic Regional Development Agreement (ERDA) spanned June 13, 1984 to March 31, 1989. It was largely dedicated to developing wood energy as a larger proportion of P.E.I.'s energy supply. Professional evaluators have agreed that the AEDA succeeded in reaching that objective, despite the precipitous decline in the cost of oil in the intervening time.

Benefits of the 1984-1989 Energy Sub-Agreement

It has been found that the social benefit/cost of conversions to wood fuel and new installations of wood-fired boilers had been positive even at fairly high social discount rates. The new biomass energy industry on Prince Edward Island has created numerous jobs and incremental income to the province while allowing some savings in energy costs and reducing the outflow of dollars spent for refined petroleum.

Estimates place the number of direct and indirect jobs created by the Agreement in a range of 257-321 person years, including many permanent jobs. These jobs have included skilled occupations in the harvesting, production and transportation of wood chips. Also, a need has been created for skilled workers in the fabrication and installation of heating systems, including the welding and laying of district heating pipe. Construction jobs have been created in the development of wood chip handling and in the installation of boilers and district heating systems.

Forestry Development

The forests of Prince Edward Island have much more potential value than has been realized. The biomass energy industry has given renewed hope for the economic development of the forest resources of Prince Edward Island. Improvement of the Island's forests is known to be dependent on better silviculture practices including the thinning of stands and the removal of inferior species and of dead, decaying or over-mature trees. The cost of such silviculture activity has been lowered somewhat because of the development of a wood chip fuel market for the material being removed.

Technological Advances

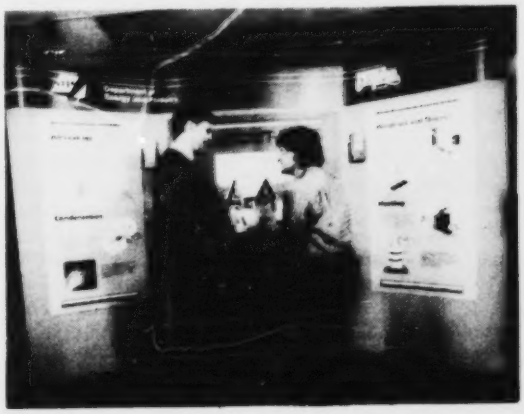
Alternate energy programs have established P.E.I. as a pioneer in the use of the latest wood-fired and district heating technologies in Canada. The experience gained by Island institutions and businesses from the use and refinements of wood combustion and district heating technologies may be marketed elsewhere in Canada.

Environmental Protection

The development to date of biomass-fuel resources on P.E.I. has positive impacts on the environment. Wood-fired emissions are non-acidic; therefore, do not contribute to acidification of bodies of water, soils and cloud bases. Wood ash is alkaline and is of benefit to agriculture. With emission control measures being implemented, well-operated wood boilers do not produce smoke or harmful pollutants.

PUBLIC INFORMATION AND EDUCATION PROGRAMS

1. **The Comfort-Plus Information Program:** Information regarding the retrofitting of homes for energy efficiency and air-quality control may be obtained by calling 1-368-5010 toll free on Prince Edward Island.



Comfort-Plus Information Display provides Island homeowners with current information on Residential Energy Efficiency.

2. **Furnace Efficiency Kits:** To assist homeowners in assessing their home heating systems, seven effi-

ciency test kits are available on loan, free of charge, from the Energy Branch Office in Charlottetown and from three Regional Services Centres (O'Leary, Summerside and Souris).

3. **Energy Cost Index:** Each month, the comparative costs for fuel oil, gasoline, electricity and propane are recorded and made available to the public upon request.

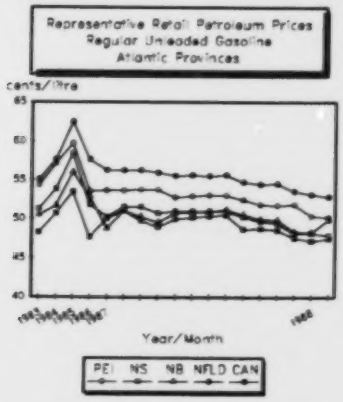
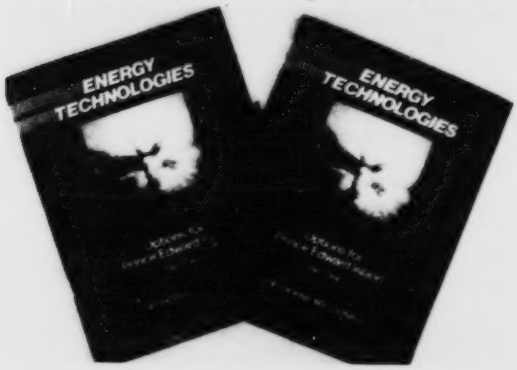


Figure 5

4. **Energy Week 1988:** The Energy and Minerals Branch sponsored and delivered "Energy Week '88", an annual event promoting the efficient use of energy in a variety of sectors. The communities of West Prince, Summerside, Charlottetown and Montague saw workshops, seminars, school programs and exhibitions on energy use and energy technologies.

5. **The Maritime Pro-Trucker Program:** In conjunction with the Atlantic Provinces Truckers Association and the Government of Canada, the Department of Energy and Forestry sponsored an energy efficiency and safety program for the province's Professional Truckers. During 1988/89, information exhibits and seminars were conducted throughout the province.



Energy Technologies Options for Prince Edward Island. These textbooks are being used in Island High School science programs.

6. **Energy Technologies for Prince Edward Island:** In conjunction with the Department of Education, the Energy and Minerals Branch has prepared reference books focusing on energy technologies for use in the high school science curriculum.

COMMUNITY PROGRAMS

During 1989, energy programs involving public participation were also carried out:

1. **P.E.I. Enerpool:** The Enerpool Program continues to demonstrate the effectiveness of ride-sharing transportation in optimizing energy use. The program which began in 1978, has four routes, with each route reducing gasoline consumption by up to 47,000 litres per year.

2. **Biomass Conversion Inspection Program:** In conjunction with Energy, Mines and Resources Canada, the Energy and Minerals Branch conducted a one-time inspection program of biomass fuelled installations in the commercial/ institutional/ industrial sector.

MINERAL ACTIVITIES

On January 7, 1986, the Government of Canada and the Province of Prince Edward Island signed a Mineral Development Subsidiary Agreement (MDA) under the Economic and Regional Development Agreement (ERDA). The three year MDA was set up to provide a comprehensive inventory of the onshore aggregate resources of Prince Edward Island.

The first phase of the program involved the compilation of background information of aggregate resource development which broadly outlined areas of the Province which could have future aggregate development potential. The second phase of the program involved conducting detailed studies in selected areas of the province with seismic profiling, geological mapping and selected site sampling being performed.

During the 1988/89 fiscal year, the final phase of the program was conducted and involved the undertaking of further detailed studies over the entire province as well as a Resource Development Mapping Program. The Mapping Program resulted in the development of a series of maps showing the relationship of offshore mineral resources to fishery and environmental parameters.

A report entitled "Prince Edward Island Aggregate Resources", which describes the activities conducted under the Mineral Development Subsidiary Agreement and the results of these activities is available free of charge from the Energy and Minerals Branch. Please direct your request to the Prince Edward Island Department of Energy and Forestry, c/o Energy and Minerals Branch, P.O. Box 2000, Charlottetown, C1A 7J6.

FINANCIAL REPORT

DEPARTMENT OF ENERGY & FORESTRY
EXPENDITURE SUMMARY
FISCAL YEAR 1988-1989

EXPENDITURES

Departmental Management	$ 397,298	
		$ 397,298
Energy & Minerals Branch		
Branch Management	$ 382,856	
E.R.D.A. Energy Sub Agreement	300,178	
Electrical Rebate Relief Program	3,059,332	
E.R.D.A. Mineral Sub Agreement	73,149	
Demand Side Program	162,223	$3,977,738
Forestry Branch		
Branch Management	$1,183,306	
Crown Land Forest Improvement	460,629	
Bunbury Nursery	224,605	
Firefighting	64,784	
Hedgerow Shelterbelt	31,178	
Headquarters Administration	149,768	
Extension	100,256	
Silviculture Development	172,601	
Industry Development	74,173	
Biomass Inventory	145,841	
Seedling Production	379,821	
Eastern District - Crown Land	59,711	
Central District - Crown Land	56,972	
Western District - Crown Land	102,193	
Eastern District - Administration	259,150	
Central District - Administration	223,093	
Western District - Administration	276,570	
Private Land Program	758,453	$4,723,104
Departmental Total		$9,098,140

DEPARTMENT OF ENERGY & FORESTRY
EXPENDITURE SUMMARY
FISCAL YEAR 1988-1989

REVENUES

Departmental Management

Energy & Minerals Branch

Branch Management	$ 13,093	
E.R.D.A. Energy Sub Agreement	84,783	
E.R.D.A. Mineral Sub Agreement	58,204	
Demand Side Program	176,241	
		$ 332,321

Forestry Branch

Branch Management	$ 261,694	
Bunbury Nursery	113,779	
Hedgerow Shelterbelt	8,199	
Headquarters Administration	69,491	
Extension	13	
Silviculture Development	155,761	
Industry Development	43,820	
Forest Biomass Inventory	112,623	
Seedling Production	270,372	
Eastern District - Crown Land	62,938	
Central District - Crown Land	51,625	
Western District - Crown Land	117,567	
Eastern District - Administration	158,400	
Central District - Administration	118,560	
Western District - Administration	178,958	
Western District - Administration	276,570	
Private Land Program	431,301	$2,155,101
Departmental Total		$2,487,422

FORESTRY BRANCH

INTRODUCTION

The Forestry Branch of the Department of Energy and Forestry is responsible for the management of 25,000 hectares of Crown lands, the delivery of an extensive forest management assistance program for private woodlot owners, the provision of industrial training, marketing and technical advisory services, and research and development of new technologies. Forest fire control and the management of Bunbury Nursery are also the responsibility of the Forestry Branch.

Almost 90% of Prince Edward Islands' forest resource is owned by the private sector. About 16,000 woodlot owners control approximately 276,000 hectares of woodland or 48 % of the Island's total landbase.

The forest sector on Prince Edward Island is one which faces many challenges and opportunities. Over the years, poor harvesting practices, as well as disease and insect problems, have produced a forest of poorly formed, low-value trees. This in turn has resulted in the gradual but steady decline of a once valuable resource. Lack of investment capital, and fluctuations in market conditions and prices have also contributed to the sectors' inability to upgrade its production capability.

However, these problems are tempered by the excellent climatic and soil conditions which make P.E.I. one of the best tree production areas in Canada. The input of the many private woodlot owners is also a positive factor as they provide a more personal interest in improving the health and quality of their holdings.

Several attempts to manage this resource were made beginning in the early 50's, but it was not until the signing of the 1983-88 Forest Resource Development Agreement (FRDA) that long term funding was provided. With signing of the the 1988-93 FRDA in June 1988, funding has again been assured to continue this work for the next five years.

The signing of the new 1988-93 Canada/Prince Edward Island Forest Resource Developement Agreement was the highlight of the last year. Allison Ellis (2nd left), Minister of Energy and Forestry, signed for the province while (from left to right) the Honorable Tom MacMillan, Minister of the Environment; Honorable Gerald Merrithew, Minister of State for Forestry; and Mel Gass, representing ACOA signed for the Federal government.

Under this newest Agreement $24.083 million will be administered by the Department of Energy and Forestry and Forestry Canada in the delivery of the following programs:

PROGRAM DESCRIPTION	$ MILLIONS
1. Private Land Management	9.336
1.1 Forest Renewal	
1.2 Forest Improvement	
1.3 Forest Infrastructure	
1.4 Nursery Operations	
2. Crown Land Management	1.491
2.1 Forest Renewal	
2.2 Forest Improvement	
2.3 Forest Infrastructure	
3. Research and Development	2.410
3.1 Forest Inventory and Dynamics	
3.2 Silviculture Development and Impact Assessment	
3.3 Tree Improvement	
3.4 Technology Transfer	
3.5 Industry Development	
4. Information and Education	1.000
5. Administration and Evaluation	3.895
5.1 Private land Administration	
5.2 Crown Land Administration	
5.3 Computer Support	
5.4 Agreement Evaluation	
6. Provincial Forest Development	5.851
6.1 Silviculture Program Support	
6.2 Crown land Forest Improvement	
TOTAL AGREEMENT	24.083

The federal contribution accounts for $14.200 million or 59% while the provincial contribution accounts for $9.883 million or 41%.

The overall objectives of the new agreement are:

a) To promote the appropriate utilization of the available resource and to ensure prompt reforestation of harvested areas with desirable species.

b) To improve the growth rate of high quality products in existing stands.

c) To improve the age-class structure of the softwood covertype.

d) To develop and foster a sense of forest management responsibility and capability within the private sector, including private woodlot owners and the industry.

e) To investigate and promote industrial development and marketing opportunities in support of the intensive forest management objectives.

f) To improve the quality of the existing forest data base and facilitate its updating, to ensure the intensive management program goals are evaluated, modified and achieved in an effective and efficient manner.

g) To undertake research and development in support of intensive forest management programs, forest protection and forest utilization, and to introduce and transfer technologies appropriate to the forest industrial and resource environment.

h) To improve the public perception of forestry on Prince Edward Island and, in particular, the public's understanding of the problems and opportunities which face the sector and the significant commitment required on behalf of the private sector by governments to ensure sustainable development of the resource.

i) To promote increased utilization of the resource by all forest users; and

j) To contribute to the economic development of the Islands' forest sector, including the improvement of employment opportunities in the sector, in order to increase the contribution of the sector to the provincial and national economies.

Highlights of 1988-89 included the signing of a new five-year Forest Resource Development Agreement, the development of three Forest Education Packages for Forestry Branch staff to deliver in Island schools, collection of improved seed for use at the J.Frank Gaudet Tree Nursery, the completion of an intensive forest/wildlife management conference for Department staff, development of a new Management Information System, and completion of all plantation assessments in the Districts.

WESTERN DISTRICT STAFF - Front L to R: Wayne Clark, Scot Jay. Back: Todd LaFrance, Larry Hughes

WESTERN DISTRICT

Western District staff wrote 22 management plans for new private land clients in 1988-89 and rewrote an additional 13 plans for existing clients.

Private land work witnessed 216 ha. of site preparation, 119 ha. of site reclamation and 41 ha. of stand improvement (26.5 ha hardwood, 14.5 ha. softwood) completed by forest contractors and woodlot owners. Infrastructure work involved the completion of seven bridges, 16 culverts, 22 km. of roads and 38 km. of boundaries.

Operations on Crown land included the completion of 86 ha. of site preparation, and 22 ha. of thinning (20 ha. softwood,two ha. hardwood). No additional bridges, or culverts were constructed on Crown lands but 20 km. of boundaries and 3.1 km. of roads were completed.

Tours of the largest maple syrup operation on P.E.I. continued to be popular. Staff of the Western District provided tours to the many school and Community service groups who visited Mr. Arnold Madsen's woodlot in Wilmot.

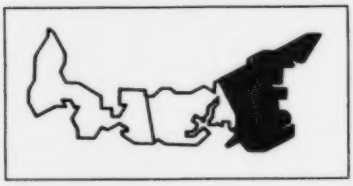
School tours of the Camp Tamawaby and Foxley River Demonstration Woodlot also continued to be a success

as did the school lecture series during National Forest Week. Due to a low turn out, the community school woodlot management course was canceled.

A new fire truck was delivered to the West Point fire station. This truck will dramatically improve wildfire fighting capabilities in the Western end of the province.

District staff also worked on creating and implementing a Management Information System for use in the private land program. This new system will help the Department keep track of private land expenditures and commitments under the new FRDA.

Staff attended a two day workshop on integrated forest management techniques to improve their working knowledge of wildlife and recreation management options.



EASTERN DISTRICT STAFF - Front L to R: Reg Conohan, Kevin Brothers. Back: Danny Murnaghan, Victor MacLeod

EASTERN DISTRICT

The Eastern District is responsible for all Crown and private land management within its borders. The Private land management program continued to expand with 22 new plans being written, 22 revised and 168 enrollment contracts signed.

Work on private land resulted in 241 ha. of site reclamation and 364 ha. of site preparation completed in order to ensure these areas are reforested in the coming years. Forest infrastructure work totaled eight new bridges, four culverts, 15 km of roads and 23 km. of boundaries for woodlot owners.

Crown land activities included, four ha. of hardwood thinning, and 13 kilometers of boundaries.

A new cross country ski club was formed around the New Harmony Demonstration Woodlot near Souris. The club and the Department of Energy and Forestry sponsored several ski days to promote the new trails and to enjoy the beauty of the forest in winter. Almost 250 people attended each of the events they sponsored.

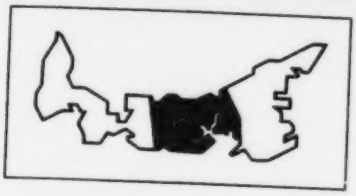
Some 250 people gathered to participate in a cross country ski day held on the New Harmony Demonstration Woodlot. Ski trails are now in place on several of the Department's Demo Woodlots.

The District hosted the 1988 Woodlot Management and Equipment Exhibition at the Valleyfield Demonstration Woodlot. Some 450 people came to see mixed softwood plantations, innovative harvesting equipment, white spruce fertilization trials and much more.

The Woodlot Management Course for woodlot owners was offered at Holland College in Montague. Several local woodlot owners attended the course to learn more about the day to day operation of their woodlots.

Assistance was also offered to Christmas Tree producers across the province by staff of the Eastern District. Workshops, field trips and new publications were provided to demonstrate the latest in Christmas tree production techniques.

Forest improvement work continued along the Montague River watershed. Under this program, participating woodlot owners received FRDA funding to improve their forest land while upgrading its wildlife production capability. Improvements to streams and rivers within the watershed's boundaries were also sponsored under this program.



CENTRAL DISTRICT STAFF - Front L to R: Terry Gauthier, Darlene Hendricken. Back: Jeff Hannam, Wayne Francis (Missing Donny Kelly)

CENTRAL DISTRICT

Based out of the Beach Grove office near Charlottetown, staff of the Central District prepared 51 new private land management plans and updated an additional six. Under the new FRDA, private woodlot owners are eligible for incentives to improve and upgrade their forest resource. The District also provided numerous client visits to provide technical support to woodlot owners managing their holdings under the program.

One and five year old plantations were assessed on both private and Crown land to gauge their survival rates. This program will continue to ensure adequate survival rates in all Island plantations.

Two hectares of site reclamation and 15 ha of site preparation were completed on Crown land in 1988-89. This work was performed by Crown land crews, and under contract with private sector contractors.

An additional two bridges and three culverts were constructed along with two kilometers of Crown land forest access road.

Work continued on private lands within the District. Almost 214 ha of site reclamation was accomplished, removing poor quality, understocked stands and preparing them for proper reforestation. Forest contractors and woodlot owners completed 88 ha. of thinning, 52 ha. in hardwood stands and 36 ha. in softwood.

Site preparation for next year's planting season resulted in 130 ha completed, with 75 ha of plantation maintenance also being finished.

Under forest infrastructure work 18 kilometers of roads, 15 culverts, and 18 kilometers of boundaries were completed in 1988-89.

Central District staff also participated in several special activities and projects. Planning began for C.J.89, the national Boy Scout Jamboree to be held at Fort Amherst in the summer of 1989. The Department will provide all fire and safety patrols for the jamboree.

Work was also initiated on the cross country ski trails for the 1991 winter games. A managed Crown land property in Brookvale was evaluated and met the conditions of the trail committee. Trail layout and contracts were begun to ensure the trail will be in acceptable condition for the games.

Island school children received lessons on forests and forestry during National Forest Week. Classroom lectures are becoming quite popular with students and teachers alike.

Staff also participated in school lecture programs, providing Island school children with information on the Island's forest resource, employment opportunities, and natural history. Central District also conducted a woodlot management course at the Stella Maris community school in Rustico.

Central District staff played a key role in planning and supervising a staff workshop on integrated forest management techniques with an emphasis on wildlife. This workshop was designed to help Forestry Branch staff respond to the many needs of Island woodlot owners.

FOREST INFORMATION AND EDUCATION

Forest Information and Education is charged with addressing the concerns and needs of three different publics: woodlot owners, youth, and the general public. In order to reach each group, many different programs have been developed and implemented to meet each group's requirements.

A comprehensive woodlot management course for Island woodlot owners was developed under the last FRDA and is now being delivered in each District. In 1988-89 courses were offered in Montague and Charlottetown to a varied group of woodlot owners, and some forest workers. Each class was introduced to many of the basic ideas and concepts necessary to successfully manage their holdings including: tree identification, silvicultural techniques, map and compass work, identifying and measuring forest products, forest ecology, wildlife management and many other subjects.

The Comprehensive Woodlot Management course began in Montague. Here instructor Ken Mayhew (center) explains some of the complexities of map and compass work to his students.

Representatives of the Department of Energy and Forestry and Forestry Canada attended a three day workshop in New Hampshire to evaluate a general level, multi-discipline forest education program entitled "Project Learning Tree"(PLT). The Department is considering using PLT as part of it's non-curriculum youth education program.

A national survey titled "Canadian Public Opinion on Forestry Issues" was conducted to help forest communicators provide forestry information to Canadians. The need for more and better information on the state of our forest resource was one of the most important findings of this survey.

The development of a new interpretive trail on the Brookvale Demonstration Woodlot and the formation of a cross country ski trail system on the New Harmony Demonstration Woodlot were two of the highlights of the past year. Over 25,000 people visited the Forestry Exhibition trailer to learn more about the Demonstration woodlot system and the various techniques used to manage our woodlands. Both of these projects have been quite successful in meeting their objectives.

Extension staff also worked on the delivey of a staff development conference, the signing of the new Forest Resource Development Agreement, an integrated management workshop, and the annual Woodlot Management and Equipment Exhibition(WMEE). Held in Valleyfield, WMEE attracted some 450 people to see mixed softwood plantations, the Tapio Felling Head, white spruce fetilization plots, and the Power Trailer.

The Maritime Woodlot Extension Committee initiated work on a Woodlot Owner of the Year Award to recognize achievement in the field of private woodlot management throughout the Maritimes. Extension staff from P.E.I. were activiely involved in development of this project. Planning also began for SILVILOG '90 a major international forest equipment and management exhibition. This exhibition will be held at the Chignecto Management Area near Springhill, Nova Scotia in September 1990.

INDUSTRY DEVELOPMENT

Recruiting and retaining silviculture workers continued to be a major focus of the Industry Development section in 1988-89. Holland College, the chief training agency for silvi-workers on P.E.I., produced nine highly skilled forest workers. Job opportunities continued to be excellent with more openings than workers to fill them.

The P.E.I. Silviculture Contractors Association held its 1989 annual meeting in February at the Linkletter Hotel in Summerside. Delegates gathered to discuss "Growing a Forest...Building an Industry" with participants offering a wide variety of options and potential solutions to many of the challenges facing their industry. Almost 30 delegates representing industry, government, woodlot owners, and education attended this conference.

Technical assistance was also provided to the Department of Industry in the delivery of their small business development program offered through ACOA. By considering the suitability, cost, and potential benefits of new equipment, Industry Development worked to ensure the continued productivity and viability of the Island's forest sector.

Assistance was offered to several sawmill owners to upgrade their lumber production capabilities. Technical

advice on lumber ramp design was also provided to several Island sawmills.

The introduction and testing of several new pieces of harvesting equipment including the Tapio felling head provided forest contractors with up-to-date information on the latest in tree harvesting technology. Several contractors in the Eastern and Central Districts have invested in similar equipment to increase their productivity and to meet new market opportunities. A change in a mainland pulp mill's shipping requirements from roundwood to woodchips also meant the introduction of a new whole tree chipper in the eastern District.

The Department of Energy and Forestry participated in SILVI-LOG'88 in St.Charles, Quebec by sending a cable logging system, the Island Logger. Almost 20,000 people visited the site to see and experience the latest in forestry equipment and management techniques.

The Department also sponsored a contractors trip to Sweden in March. This trip enabled Island forest contractors to see many of the different harvesting and management systems currently being used in that country. Particular emphasis was placed on biomass harvesting technology to ensure the industry's ability to keep up with the latest in wholetree processing methods.

TREE IMPROVEMENT

Work continued on the Dover Seed Orchard near Murray River. By 1992, this 56 hectare site will be producing sufficient quantities of genetically improved seed to produce all of P.E.I.'s seedling requirements. Species currently under production include: white spruce (Picea glauca), red spruce (Picea rubens), white pine (Pinus strobus), eastern larch (Larix laricina) and balsam fir (Abies balsamea).

A maintenance building was constructed on the Dover site and the forest access road was completed. The red spruce orchard site was prepared for planting in 1989 and the design and layout of the irrigation system was begun. Plans were also made to establish a weather monitoring station on the site. This station will provide Tree Improvement staff with information on local rainfall, wind direction and speed, and the maximum and minimum temperatures.

Unfortunately due to small scion (twig) size this year's grafting levels were lower than expected. Approximately 3,200 grafts were completed and transplanted in Tree Improvement Orchards.

The first seed was collected from several small tree improvement orchards on 48 Road, Upton Road, and Dover. Approximately 160 bushels of black spruce and two bushels of larch were gathered and will be used next year to produce improved tree seedlings at the J.Frank Gaudet Tree Nursey.

Several experimental plantings were established on sites across the province. Larch tests were begun on sites in Wellington and Valleyfield, and Ottawa Valley white spruce tests were established in Wellington, Southampton, and Dromore. Staff of the Tree Improvement section also assisted Forestry Canada by manually cleaning four of their test sites.

FOREST INVENTORY AND DYNAMICS

Staff of Forest Inventory and Dynamics established 60 new Permanent Sample Plots (PSP) on private and crown land across the province. This brings the total number of PSPs to 194. Individual trees within the PSP's boundaries are tagged and data such as species, height, and diameter are measured and recorded. This allows the researcher to follow the progress of individual trees and forest stands over a period of years or decades. Information gathered here will help foresters to predict the future development of the Islands' forests.

Work continued on evaluating and testing of the Geographic Information System (GIS).Staff attended a training session on the GIS program software and began to incorporate several software modifications before the 1990 forest inventory takes place.

Old field white spruce responds well to thinning. This stand was thinned several years ago and will produce a large volume of quality sawlogs.

GIS map entry continued with 150 maps now on system. An additional 60 maps will be acquired from Land Registration and Information Service (LRIS) next year.

A re-evaluation of satellite imagery was begun to test the system's ability to detect small patch cuts, and areas of insect or disease damage. It will also be tested to see if it can detect significant differences in softwood and hardwood cover types.

Equations for poplar volumes and site index tables based on stem analysis were completed. Some 200 copies of the Forestry Handbook were printed and distributed, with additional work on site index comparisons now underway to complete these handbooks.

Field work was completed on second generation tree cover on old field sites. Most of these stands regenerate to inferior intolerant hardwoods such as pin cherry and trembling aspen when the overstory of spruce dies.

SEEDLING PRODUCTION

The J.Frank Gaudet Tree Nursery located in West Royalty is the main seedling production facility on P.E.I. The facility consists of two gutter-connected double layer polyethylene greenhouses which provide growing space for container seedlings, an addition 35 hectares of land is available for bareroot seedling production.

Species currently under production include black spruce, white spruce, white pine, red pine, Austrian pine, eastern larch, and balsam fir. These seedlings will be planted and tended to eventually produce pulpwood, sawlogs and Christmas trees.

In 1988 2.875 million trees were shipped to planting sites on private and Crown lands across the province. The planting totals by District were as follows.

Species	East	Central	West	Special	
Red Pine	229,475	804676	110,766	3,800	
White Pine	30,625	23,589	39,558	11,815	
Austrian Pine	15,818	47,097	26,621	9,227	
White Spruce	124,973	193,541	100,903	18,003	
Black Spruce	417,715	188,433	238,649	3,014	
Eastern Larch	208,223	79,316	306,054	3,227	
Hybrid Poplar	4,600	9,235	5,975	6,400	
Balsam Fir	119,812	52,607	32,109	3,266	
Totals	1,151,241	804,676	860,635	58,752	2,875,304

Seedlings for the 1989 planting season were seeded at the nursery in March and April of 1988. Seed was collected from high quality stands and stored in controlled temperature coolers. This ensures adequate supplies of quality seed when needed.

After germination, the seedlings are allowed to grow and develop in the greenhouses until late August when they are placed in outdoor holding areas for the winter. The overwintering outside promotes hardiness prior to planting.

Seedling production levels for 1989 are as follows.

Species	Production Numbers
Red Pine	426,500
White Pine	53,500
Austrian Pine	63,500
White Spruce	249,000
Black Spruce	548,000
Eastern Larch	480,000
Balsam Fir	190,000
Total	2,046,500

BUNBURY NURSERY

The role of Bunbury Nursery falls into three broad categories including:

1. Providing an advisory service to the general public on landscaping planting and care of ornamentals.
2. Representing P.E.I. on the Atlantic Crops Advisory Committee on Ornamentals and Greenhouses, and to conduct regional bedding plant and shrub hardiness trials.
3. Providing ornamental trees, shrubs, flowers, and gardening supplies to the general public through operation of a retail outlet.

Dutch elm disease continued its spread reaching almost to Kings county. Control efforts are continuing in urban areas.

Sales in 1988-89 amounted to $113,000; an increase of approximately 5% over last years figures. This was less than expected as poor weather during planting season may have affected sales.

The Landscape Assistance Grant program administered 12 separate ventures, approving $3,500 in grants. Under this program, groups and communities are eligible for grants to improve and beautify the Island's landscape.

Work continued under the Atlantic Crops Advisory Committee on Greenhouses and Ornamentals bedding trials. In 1988, 139 varieties of Annuals were tested. As part of the Shrub trials, several varieties previously planted were evaluated, and several new rose varieties were planted.

Extension services were provided to a wide variety of clients including the general public, public organizations and municipalities. Trained seasonal staff helped alleviate the backlog of customers requiring assistance.

Identification and education programs on Dutch Elm Disease (DED) were offered to Island municipalities to help them control the spread of this fatal and costly disease. In 1988, a DED infected tree was discovered in Alberry Plains, a jump of 100 kilometers from the nearest outbreak in 1987.

FOREST FIRE CONTROL

Prevention and suppression of forest fires in Prince Edward Island is the responsibility of the Department of Energy and Forestry. The incidence of fires was down from last year, as there were only 21 fires which burnt a total of 16.8 hectares of forested land. Most of the fires were classified as either of incendiary or of unknown causes.

The West Point Fire Department received a new ground tanker during the 1988 season, while the Department of Energy and Forestry purchased a new transport trailer and hauling unit for the J-5 Bombadier.

Forest fire suppression training was provided to volunteer fire fighters. A total of 5 courses were offered across the province. In 1989 a course manual will be printed to complement the training.

Department staff underwent a one day workshop on fire behavior and mock fire analysis to upgrade their working knowledge of fire suppression techniques.

The planning of, and specifications for an integrated mobile radio system was prepared. This system is scheduled to begin operation in 1989 and will help provide better radio communications during an emergency.

TABLE #1
WORK COMPLETED
PRIVATE LAND 1988-89

		EAST	CENTRAL	WEST	TOTAL
SITE RECLAMATION	(ha)	241.42	213.76	119.31	574.49
SITE PREPARATION	(ha)	363.63	130.26	216.21	710.10
STAND IMPROVEMENT	(ha)	17.19	84.69	40.88	142.76
ROADS	(km)	15.07	17.73	21.81	54.61
BOUNDARIES	(km)	23.00	18.42	38.52	79.94
BRIDGES	(m2)	8.10	2.80	6.83	17.73

TABLE #2
WORK COMPLETED
CROWNLAND 1988-89

		EAST	CENTRAL	WEST	TOTAL
SITE RECLAMATION	(ha)	-	2	-	2.0
SITE PREPARATION	(ha)	-	15.4	86.05	101.45
STAND IMPROVEMENT	(ha)	4.3	-	21.93	26.23
ROADS	(km)	-	2.2	-	2.20
BOUNDARIES	(km)	13.2	-	20.04	33.24
BRIDGES	(m2)	-	2	-	2.0

TABLE #3
1983-88 WORK SUMMARY

ACTIVITY		PRIVATE	CROWN	TOTAL
ROADS	(KM)	310	95	405
CULVERTS	(#)	180	-	180
BRIDGES	(M2)	245	-	245
BOUNDARIES	(KM)	583	91	674
SITE PREPARATION	(HA)	3,593	804	4,397
PLANTATION	(HA)	3,340	817	4,157
PLANTING	(TREES)	7,673,442	1,875,284	9,548,726
STAND IMPROVEMENT	(HA)	2,424	176	2,600
SITE RECLAMATION	(HA)	1,210	1	1,210

TABLE #4
WOOD FIBER HARVESTED 1988

	CUBIC METERS	CORDS	REVENUE $
SAWLOGS & STUDWOOD	91,200	38,000	3,230,000
PULPWOOD	45,600	19,000	883,500
BIOMASS*	28,800	12,000	686,400
FUELWOOD	309,600	129,000	6,450,000
TOTAL	475,200	198,000	11,249,900

*GREEN TONS

TABLE #5
PRODUCTIVE FOREST LAND BY
COVER TYPE

COVER TYPE	AREA ('000 HA)	VOLUME ('000M3)
SOFTWOOD	90	8 950
MIXEDWOOD	85	9 020
HARDWOOD	70	8 010
UNSTOCKED	33	-
TOTAL	278	25 980

The Yankee yarder is a piece of extraction equipment designed for the small woodlot owner who wants to remove his own wood. Production figures vary but experienced operators can bring at least 1 cord per hour out to roadside.

Dr. Five shows Island students the benefits of Biomass Energy.

Allison Ellis, Minister of Energy and Forestry, congratulates the winners of the Winter section of the photo contest :"A Forest For All Seasons." This contest encouraged amateur photographers from across the province to visit and photograph the many features of the Demonstration Woodlots.

Valleyfield Demonstration Woodlot near Montague is rapidly becoming recognized as an excellent site to see many of our Island's woodland bird species. By following the walking trails, and bringing one's binoculars and bird identification book, an enjoyable afternoon can be had by all.